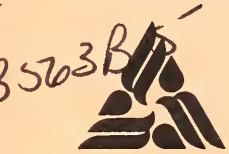


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Biotechnology Notes

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Biotechnology Notes, a compilation of agency activities, news events, and upcoming meetings, is prepared for members of the U.S. Department of Agriculture's (USDA) Committee on Biotechnology in Agriculture (CBA) by USDA's Office of Agricultural Biotechnology (OAB).

INSIDE USDA

ADD COTTON TO THE GROCERY LIST

Genetically engineered cotton may be the latest agricultural product to be approved for outdoor field tests by USDA's Animal and Plant Health Inspection Service (APHIS). Using recombinant DNA techniques, scientists have been able to control specific cotton insects, such as the tobacco budworm-bollworm complex. Laboratory and greenhouse tests were conducted by Agracetus, a private firm in Middleton, Wisc. and USDA's Agricultural Research Service (ARS) at Mississippi State University, site of the proposed tests.

APHIS has already approved outdoor tests for genetically engineered tomato and tobacco plants and is now reviewing applications for field trials using soybeans, alfalfa, and potatoes. Requests for permits to test rice and corn that contain a genetically engineered endophyte (an organism that lives inside a plant) are also in the pipeline.

A decision on the cotton field test is expected in mid-April.

SOMETHING TO CARP ABOUT

In the past, genetic manipulations have been limited to plants, farm animals, and microbes. Now scientists are able to apply similar techniques to various fish species, including coho salmon, walleye pike, catfish, and carp. The first intended genetic effect is to improve fish growth rates. Being able to produce a market-sized fish in a shorter time period using less feed could boost the nation's aquaculture industry, help to satisfy consumer demand for more fish, and shed new scientific light on biotechnology principles.

The Alabama Agricultural Experiment Station at Auburn University has emerged as one of the nation's leaders in the transgenic fish arena. After 5 years of successful laboratory work, the research team is ready to move its experiment to outdoor ponds. Outdoor tests for fish, as well as plants, microbes, and farm animals, are necessary to see how a product fares in the natural environment. Auburn asked USDA's Agricultural Biotechnology Research Advisory Committee (ABRAC) to review and comment on the biosafety provisions of its proposed field test of genetically altered carp.

The carp received a growth hormone gene in the laboratory from rainbow trout using a technique called microinjection. Male and female transgenic carp would be placed in separate, small earthen ponds and reared to sexual maturity. They would then be returned to the laboratory and spawn. The fry would be placed outside in secured ponds and studied to see if the trout gene was inherited. If the experiment is successful, the carp could become a scientific model for further experiments transferring genes into fish.

At ABRAC's next meeting, March 22-23, panel experts will review Auburn's proposed confinement procedures and determine whether they adequately ensure the safety and protection of the environment. The ABRAC studied and voted on another proposed field test for a brucellosis vaccine at its January meeting. See the February 1989 issue of Biotechnology Notes for details.

The ABRAC recommendations, like those of other federal advisory committees, are strictly advisory. Senior government officials use the advice to help in making difficult decisions and for long-term policy planning.

OAB BRIEFS EUROPEAN VISITORS

In an effort to advance West Germany's role in biotechnology, the German Ministry for Research and Technology is conducting a comparative analysis of biotechnology regulations in other countries. In addition, that government is concerned with the impact of biotechnology on the public and methods of assuring public confidence and support. Two consultants for the West German study visited OAB Feb. 17 and were briefed on our government's coordinated framework. OAB Director Alvin Young and Deputy Director Daniel Jones discussed emerging USDA policy and the evolution of biotechnology research guidelines. Marti Asner described USDA's public affairs activities, and Lambert Wenner explained provisions of the National Environmental Policy Act.

UPDATE ON USDA-PURDUE AGREEMENT

As reported in the November 1988 issue of Biotechnology Notes, USDA signed a cooperative agreement with Purdue University to conduct a study on the social and economic impacts of agricultural biotechnology. The plan includes preparing for publication a base book and leaflet series for use by administrators, agricultural leaders, and other professionals concerned about agricultural biotechnology.

In late January, project director Bill Baumgardt met with representatives from OAB, the Cooperative State Research Service, Extension Service, and Economic Research Service to identify specific agency liaisons who will help review chapters in the new publications. In early March, the reviewers will convene in St. Louis and begin critiquing the 10 chapters.

In addition to the publication phase of the joint agreement, the project includes identifying high priority researchable problems on the socio-economic impacts of ag biotechnology and an in-depth analysis of the perceptions and concerns of the public.

AROUND THE NATION (AND THE WORLD)

SAFE DEPOSIT SERVICE FOR CULTURES

The American Type Culture Collection offers safe deposit services for preserving valuable biological cultures and genetic material. Both freeze-dried and liquid nitrogen storage is available, along with depository services for patent pending and patented cultures of algae, bacteria, cell lines, fungi, genetic material, plant tissues, protozoa, seeds, viruses, and yeasts. For more information, contact the American Type Culture Collection, 12301 Parklawn Drive, Rockville, Md. 20852, or call (301) 881-2600.

CANADIANS DISCOVER GROWTH REGULATORS

Researchers at Canada's National Research Council and the University of Saskatchewan discovered a group of chemicals that promote germination in canola, barley, wheat, corn, and other crops. The chemicals are related to the natural hormone abscisic acid and interfere with natural plant hormones that inhibit germination. Patents have been filed and field testing is underway.

GREEN ALGAE GENES UNDER INVESTIGATION

Researchers at Iowa State University and Pioneer Hi-Bred, International are testing Chlamydomonas, a type of green algae, as a potential source of desirable genes for use in plant genetic engineering projects. At the cellular level, Chlamydomonas is similar to higher plants and easy to manipulate. Because of its genetic similarities to higher plants, the organism could be a storehouse of desirable genes that could be used to improve Iowa's important agricultural crops, such as corn and soybeans. The genes are being isolated at a university laboratory and will be transferred into higher plants at Pioneer's facilities in Johnston, Iowa.

GETTING YOUR MESSAGE ACROSS

A recent issue of Wisconsin BioIssues offers some helpful hints for scientists who interact with the media. For example, always return a reporter's phone call as soon as possible. You are "on the record" the moment a reporter calls and identifies himself or herself as a reporter. Don't give information "off the record" unless you trust the reporter as you would a personal friend. You have the right not to talk to a reporter. (If you do decline, it's a good idea to find someone to take your place.) If you're concerned about being misquoted, ask the reporter to read back statements that will be in quotation marks. Stick to the message you want to get across, repeating it several times if necessary. Exchange phone numbers with the reporter and encourage the reporter to call you back for further checking. At the conclusion of the interview, ask the reporter to tell you what he or she thinks is the point you were making. Take this time to correct inaccuracies.

WISCONSIN ASSEMBLY APPROVES BILL

The Wisconsin Assembly natural resources committee, in a 9-0 vote, approved a bill that would establish that State's regulatory position on outdoor field trials, according to the Jan. 23 issue of Wisconsin BioIssues. Opponents of the bill, AB 14, say it is "undemocratic" because no hearings were held outside of Madison and that it "has no teeth" because Wisconsin State agencies would not be given new regulatory powers.

The Sierra Club supports the bill because "it provides the initial information that Wisconsin government needs to begin monitoring the release of genetically engineered organisms into the environment." These issues and others will continue to be debated by the Wisconsin Senate and various committees.

IN CASE YOU WEREN'T THERE

- At the "Beyond the Large Farm: Ethics and Agriculture Research" workshop held by Texas A&M University on Jan. 13, David MacKenzie, Director of USDA's National Biological Impact Assessment Program, spoke on how biotechnology is expected to change the farm-government-research relationship. He developed a profile of the value system on ethics of the American farm family (termed agroethics) and compared that system to the traditional values of public sector agricultural researchers. He invited social science researchers to investigate agroethics as a way of helping policy makers plan for major shifts in the value systems brought about by the new technology, and to find ways to measure the practical impacts of agroethics.

- "Synergy 1989 - Biotechnology", sponsored by the National Wildlife Federation, met Jan. 31 in Washington, D.C. Industry, academia, and government shared thoughts on the future of biotechnology. Harold Corbett, senior vice president of Monsanto said industry, government, and interest groups should "work together to help the public understand why we must ensure the future of this technology, and to work together to listen to the public's concerns." Bruce Mackler, general counsel at the Association of Biotechnology Companies, said "The Environmental Protection Agency's proposed policy of regulating new uses of naturally occurring microorganisms is unnecessarily burdensome."

- More than 7,500 people gathered in New Orleans Feb. 12-14 for the 85th convention of the United Fresh Fruit and Vegetable Association. Maryln Cordle, senior regulatory specialist in OAB, joined panel members from Calgene Inc. and the American Farm Bureau Federation to discuss "The Biotechnology Revolution." Cordle talked about the delicate balance regulators must achieve between under and over regulation. She said it is important to safeguard public and environmental health while encouraging research and development and U.S. competitiveness in world markets. She discussed new initiatives at USDA, including development of research guidelines, and the debate over intellectual property rights.

- Alvin Young, OAB Director, spoke on range science education and biotechnology at the annual meeting of the Society for Range Management, held in Billings, Montana, Feb. 19-24. He talked about the need to encourage students to pursue science majors

in school. Beginning in 1977, 18 percent of high school sophomores expressed the desire to pursue natural science/engineering studies in college. By 1980, 9 percent of these now college freshmen planned on pursuing natural science/engineering degrees. In 1986, only 1 percent of the original high school sophomore class obtained master of science degrees in these areas of study. Projections are that by 1992 only 0.2 percent of the original group will be successful Ph.D. candidates in the natural science/engineering fields. Young discussed training opportunities at USDA including ARS/Forest Service post doctoral programs, summer internships for students from 1890 institutions, and the national teleconference on agriscience. He said the need for more qualified people is especially strong in plant research where biotechnology may help solve drought, fertilizer, and disease problems.

NEW PUBLICATIONS

New Biotech Business, a Canadian bi-monthly newsletter that covers both agricultural and biomedical events. Started June 1988. Fees: USA subscribers, \$250; Canadians, \$280; Others, \$320. For more information, either write to New Biotech Business, 9A Maple Ridge Crescent, Nepean Ontario, K2J3L3, or call (613) 825-6444. The FAX number is (613) 825-6445.

The following three new publications are available from Iowa State University's Technology and Social Change monograph series. To order, send check or money order made out to "ISURF" and mail to D. Michael Warren, Chair, Technology and Social Change Program, Iowa State University, 318B Curtiss Hall, Ames, Iowa 50011. (Iowa residents should include 5% sales tax; please include \$2 for domestic orders and \$3 for international orders to cover postage and handling.):

1) "Biotechnology: Implications for Agribusiness in the 1990's," by Marvin Hayenga, professor of economics, Iowa State University. TSC Monograph #8, \$4.

2) "Choices for the Heartland: Alternative Directions in Biotechnology and Implications for Family Farming, Rural Communities and the Environment," by Chuck Hassbrook, Field Organizer and Policy Analyst for Center for Rural Affairs. TSC Monograph #9, \$12.

3) "Proceedings of the Transgenic Animal Research Workshop," edited by Joan Hopper, Director of ISU Laboratory Research Animals, et al. Includes guidelines developed at the Oct. 26-27, 1988 workshop. TSC Monograph #10, \$15.

"AgBiotech News and Information" is a new bimonthly publication prepared by CAB International of Great Britain and Tucson, Arizona. For subscription information, call 800-528-4841 or (602) 621-7897.

Biotechnology and the Research Enterprise: A Guide to the Literature, by W. Woodman, M. Shelley, and B. Reichel. Iowa State University Press. 1988. \$49.95. To order, call (515) 292-0140.

UPCOMING MEETINGS

March 6-9: Patent Law for Scientists and Engineers. Chicago, Ill. Sponsored by the Center for Professional Advancement. For details, call (201) 613-4535.

March 7: Strategic Planning for New Technologies. Chicago, Ill. Sponsored by Business Week Executive Programs. For details, call (212) 512-4930.

March 22-23: Meeting of USDA's Agricultural Biotechnology Research Advisory Committee. Washington, D.C. Agenda items include the development of research guidelines, a field testing handbook, and a proposal concerning testing of pond-contained transgenic fish. The meeting is open to the public and will take place in room 104-A of the USDA Administration Bldg. The meeting begins both days at 9 a.m. and is scheduled to conclude on March 22 at 5 p.m. and at 3 p.m. on March 23. USDA is located at 14th and Independence Ave. S.W., Washington, D.C. 20250. For more information, call the Office of Agricultural Biotechnology at (202) 447-9165.

March 28-30: AgBiotech '89. Arlington, Va. Sponsored by Biotechnology Magazine. Call 1-800-243-3238, ext. 232.

March 29-31: Third International Meeting of the Association of Biotechnology Companies. Washington, D.C. Call (202) 842-2229.

April 1-7: Plant Gene Transfer. Park City, Utah. Contact: UCLA Symposia, 103 Molecular Biology Institute, Los Angeles, Calif. 90024-1378.

April 3-4: "Maintaining a Competitive Edge in Food Biotechnology: Prospects and Challenges". Arlington, Va. Sponsored by the American Society for Microbiology and the Institute of Food Technologists. Call Caroline Polk at (202) 833-9680 for details.

April 4-5: In Vitro Toxicology: New Directions. Baltimore, Md. Contact Jeanne Tylee, The Johns Hopkins Center for Alternatives for Animal Testing, 615 Wolfe St., Baltimore, Md. 21205.

April 4-7: Pacific Rim International Technology Transfer Conference. Atlanta, Ga. Write to Lucy W. Malone, 325 Plus Park Blvd., Nashville, Tenn. 37217.

April 7-10: First U.S.-Japan Symposium on Biotechnology. St. Petersburg Beach, Fla. Sponsored by Showa University Research Institute. For details, call (813) 576-6675.

April 9-14: 197th American Chemical Society National Meeting. Dallas, Texas. Write to C. Pruitt, 1155 16th St. N.W., Washington, D.C. 20036, or call (202) 872-4485.

April 15-19: Plant Biotechnology: Engineered Storage Products for the Agro Industry. Bad Soden, West Germany. Write to DECHEMA, P.O. Box 97 01 46, 6000 Frankfurt am Main 97, West Germany.

April 20-21: Recent Advances in Biotechnology Symposium. Lansing, Mich. Sponsored by the Michigan Biotechnology Institute. Call Gretchen Smith on (517) 337-3181 for more information.

May 16-19: Econinforma '89. The First International Congress and Exhibition on Environmental Information, Communication, and Technology Transfer. Bayreuth, West Germany. Sponsored, in part, by USDA's Office of Agricultural Biotechnology. For more information, write to Dr. H. Fiedler, Ecological Chemistry, University of Bayreuth, P.O. Box 10 12 51, D-8580 Bayreuth, Federal Republic of Germany, or FAX 49 (921) 54626.

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Biotechnology Notes is written and edited by Marti Asner, a public affairs specialist on assignment to OAB. Suggestions for items to include in future issues are always appreciated and may be sent to: USDA/OAB, 14th and Independence Ave., S.W., Room 321-A, Administration Bldg., Washington, D.C. 20250; telephone (202) 447-9165.

